

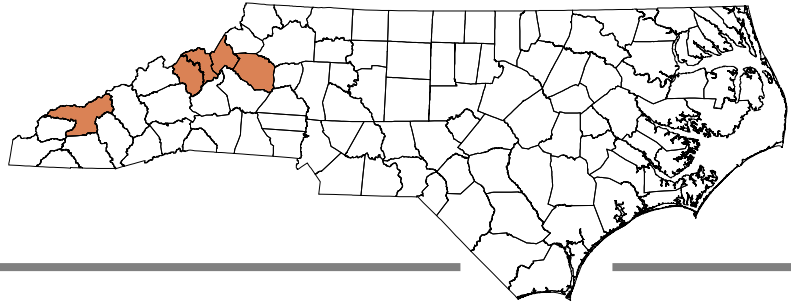
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# Arachnids

## Spruce-fir moss spider

*Microhexura montivaga*

Endangered (February 6, 1995)



**Description:** Coloration of *M. montivaga* ranges from light brown to darker reddish brown with no markings on the abdomen. The carapace is generally yellowish brown with chelicerae that project forward well beyond the anterior edge of the carapace. It has a pair of very long posterior spinnerets, and a second pair of book lungs that appear as light patches posterior to the genital furrow. Adults measure only 0.10-0.15 inch (2.5 - 3.8 mm) in length.

**Life History:** The spider constructs its tube-shaped webs in the interface between the moss mat and rock surface, occasionally extending the web into the interior of the moss mat. Although there are no records of prey being found in the webs, the species has been observed taking prey in the wild. The abundant springtails in the moss mats provide the most likely source of food for the spider. Males of the species mature during September and October, and females lay eggs in June. The thin-walled, transparent egg sac may contain seven to nine eggs. The female remains with the egg sac and will carry it with her fangs if disturbed. Spiderlings emerge in September. It is estimated that it may take three years for the species to reach maturity.

**Habitat:** The spruce-fir moss spider is found in damp but well-drained moss and liverwort mats growing on rocks or boulders and in well-shaded areas of mature, high-elevation Fraser fir and fir dominated spruce-fir forests. The moss mats cannot be too dry, as the species is very sensitive to desiccation, or too wet because large drops of water pose a threat to the spider.

**Distribution:** The spider is known to only exist in six locations: Mount Collins and Clingmans Dome in Swain County, NC; Grandfather Mountain in Avery, Watauga, and Caldwell counties, NC; Roan Mountain in Avery and Mitchell counties, NC and Carter County, TN; and, Mount LeConte and Mount Buckley in Sevier County, TN. It is believed to be extirpated from Mount Mitchell in Yancy County\*, NC.

**Threats:** The high-elevation spruce-fir forests through much of the species' historic range are being decimated by the exotic insect, balsam wooly adelgid (*Adelges piceae*), and possibly by air pollution (acid rain). The death and thinning of the forest canopy results in locally drastic changes in microclimate, including increased temperatures and decreased moisture which lead to desiccation of the moss mats on which the spruce-fir moss spider and its prey depend for survival. Other threats include unauthorized collecting or handling, unauthorized pesticide applications within the occupied habitat, intentional or unauthorized destruction of the habitat (burning, forest clearing, trampling, or other disturbance of the moss mats).

**Management Recommendations:** Protection from unauthorized and authorized disturbance of habitat and collection.

\* No record has been reported in this county in the past 20 years.

Sources: USFWS 1995e, 1997c., 2000.

